

Applicant : Choi et al.  
Serial No. : 09/888,114  
Filed : June 22, 2001  
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Attorney's Docket No.: 13764-007001

REMARKS

Responsive to the action mailed July 16, 2002, applicant elects the invention of Group I drawn to pharmaceutical compositions comprising a biopolymer, a cephalosporin and a cationic binding agent, and group (b) where the cationic agent is a metal cation. With regards to the species election, applicant elects the species of carrageenan. The election is made without traverse.

Attached is a marked-up version of the changes being made by the current amendment, as well as a clean set of the pending claims. A request for an appropriate extension of time is being filed herewith. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 12/16/02



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Claims 1, 4, and 23-41 have been cancelled.

Claims 2, 3, 5, and 14-22 have been amended as follows:

2. (Amended) A pharmaceutical composition for oral delivery of [an antimicrobial agent] a cephalosporin comprising:
  - d) a biopolymer;
  - e) [an antimicrobial agent] a cephalosporin entrained within or ionically bound to the biopolymer [polymer];
  - f) a metal cation [cationic binding agent] entrained within or ionically bound to the biopolymer or the cephalosporin [antimicrobial agent]; and
  - d) an absorption enhancer.
3. (Amended) The pharmaceutical composition of claim [1 or] 2 wherein the biopolymer is selected from the group consisting of carrageenan, xylan, chitin, chitosan, chondroitin sulfate, sodium alginate, carboxymethylcellulose, pectin, polysaccharides, polypropylene glycols, polyethylene glycols, polyacetates, liposomes, fatty acid complexes, cyclodextrins, cycloamyloses, clathrates, cycloalkyl amyloses, polyxylose, polylactic acids and combinations thereof.
5. (Amended) The pharmaceutical composition of claim 2[4] wherein the cephalosporin is selected from the group consisting of ceftiofur, cefipime, cefixime, cefoperazone, cefotaxime, cefpodoxime, ceftazidime, ceftizoxime, ceftriaxone, cefpirome, cefclidin, cefmenoxime, cefozopran, and combinations thereof.
14. (Amended) The pharmaceutical composition of claim [1 or] 2 wherein the metal cation [cationic binding agent] is selected from the group consisting of calcium, magnesium, lithium, iron, copper, zinc, aluminum, manganese, chromium, cobalt, nickel, [ammonium salts] and combinations thereof.

15. (Amended) The pharmaceutical composition of claim 12 wherein the metal cation [cationic binding agent] is calcium.

16. (Amended) The pharmaceutical composition of claim 12 wherein the metal cation [cationic binding agent] is zinc.

17. (Amended) The pharmaceutical composition of claim [1 or] 2 wherein the metal cation [cationic binding agent] is ionically bound to the biopolymer forming a [cationic binding agent-biopolymer] metal cation-biopolymer complex and the cephalosporin [antimicrobial agent] is contained within the [cationic binding agent-biopolymer] metal cation-biopolymer complex.

18. (Amended) The pharmaceutical composition of claim [1 or] 2 wherein the metal cation [cationic binding agent] is ionically bound to the cephalosporin [antimicrobial agent] forming a [cationic binding agent-antimicrobial] metal cation-cephalosporin complex and the [cationic binding agent-antimicrobial] metal cation-cephalosporin complex is contained within the biopolymer.

19. (Amended) The pharmaceutical composition of claim [1 or] 2 wherein the metal cation [cationic binding agent] is complexed to the cephalosporin [antimicrobial agent] and the metal cation [cationic binding agent] is further ionically bound to the biopolymer forming a cephalosporin-metal cation-biopolymer[an antimicrobial-cationic binding agent-biopolymer] bridge.

20. (Amended) The pharmaceutical composition of claim [1 or] 2 wherein the biopolymer is carrageenan or pectin.

21. (Amended) The pharmaceutical composition of claim 15 or 20[17] wherein the carrageenan has a calcium content of less than about 0.4% by weight.

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22. (Amended) The pharmaceutical composition of claim 2 wherein the biopolymer is carrageenan, the cephalosporin [antimicrobial agent] is ceftriaxone, the metal cation is calcium and the absorption enhancer is a non-ionic surfactant [capmul].